



# CBCS SCHEME

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18MCA31

Third Semester MCA Degree Examination, Dec.2024/Jan.2025

## Database Management System

Time: 3 hrs.

Max. Marks:100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

### Module-1

- 1 a. Define database management system. Explain its characteristics. (10 Marks)
- b. With suitable diagram, explain the main phases of database design. (10 Marks)

OR

- 2 a. Explain with proper diagram the 3-schema architecture of DBMS. (10 Marks)
- b. What are the different types of attributes? Explain with example. (10 Marks)

### Module-2

- 3 a. Define the following terms: (i) Join (ii) Division (iii) Cartesian product (iv) Union (v) Set difference. (10 Marks)
- b. Discuss on the characteristics of Relations. (10 Marks)

OR

- 4 a. How does the various update operations deal with constraint violations? (10 Marks)
- b. Discuss the Unary relational operations with example. (10 Marks)

### Module-3

- 5 a. Explain the structure of CREATE TABLE command with suitable example. (10 Marks)
- b. What are views in SQL? Explain. (10 Marks)

OR

- 6 a. Explain with suitable example the basic structure of SQL query. (10 Marks)
- b. What are aggregate functions? Explain. (10 Marks)

### Module-4

- 7 a. Define Functional Dependency and explain informal design guidelines for relation schemas. (10 Marks)
- b. What is Normalization? Explain 1NF, 2NF and 3NF with example for each. (10 Marks)

OR

- 8 a. What is Stored Procedure? Write the syntax for creating stored procedure. (10 Marks)
- b. What is a Trigger? Explain DML trigger, with an example. (10 Marks)

### Module-5

- 9 a. Define Transaction. Explain ACID properties of transactions. (10 Marks)
- b. Discuss the ARIES recovery algorithm. (10 Marks)

OR

- 10 a. Explain the strict Two-Phase Locking (strict-2PL). (10 Marks)
- b. Discuss the levels of isolation in detail. (10 Marks)

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